Heat Disorders

or

Keeping Cool is Good

Overview

- I. Basics
- II. Types of Heat Disorders
- III. Prevention
- IV. Summary

Basics

- Passive transfer of heat from higher
- temperature to a lower temperature.
- In Humans:
- Conduction - 65% heat loss under normal circumstance . Increase ambient air temperature; decrease lost
- heat (>37* C.)
- Evaporation - 20% of heat loss under normal conditions. Increase ambient air temperature this becomes the major mechanism for heat dissipation (2.5 l/hr
- with vigorous sweat lose)

Types of heat disorders

- 1. Heat Syncope
- 2. Heat Cramps
- 3. Heat Exhaustion
- 4. Heat Stroke

HEAT SYNCOPE

- Sudden unconsciousness secondary to
- cutaneous vasodilatation and decreased cerebral perfusion and hypotension.
- SBP <100 mmHg
- Skin: cool and moist
- Pulse: can be weak
- Onset of symptoms within 2 hours of vigorous physical activity.

HEAT CRAMPS

- Due to loss of Fluids /Electrolytes
- Fluid replacement with H2O leads to Na depletion and muscle spasm (1-3 min). Onset immediately after activity
- ALERT; VSS ; Agitation due to pain
- Skin: cool and moist
- Muscles: tender with occasional “twitching”

HEAT EXHAUSTION

- Results from prolonged heavy activity with inadequate fluid/Na intake -Dehydration, Na Depletion , Isotonic fluid loss.
- Muscle cramps, thirst , weakness, headache, fatigue, anxiety, impaired judgment, paresthesis
- Increase pulse/breathing; Skin moist

HEAT STROKE

- MEDICAL EMERGENCY!!!
- Impaired/altered consciousness
- Dizziness,weakness, headache, nausea/vomiting, vision changes,irrational behavior, convulsions and DEATH (multisystem)
- Unstable vitals, HOT skin, hyperventilation

Treatment

- Syncope: Rest in cool location/ fluids
- Cramps: Rest and oral salt (preferably not tablets). 1-3 days before complete
- recovery
- Exhaustion: Fluid repletion (1-2L/2-4hr) with Na replacement. Cool environment.
- Stroke: Rapid Cooling; NO ICE BATHS

PREVENTION

- COMMON SENSE!
- Monitor WBGT (heat and humidity)
- Heavy Activity NOT recommended when WBGT >28*C>
- Adequate Acclimatization of workers
- before starting long/strenuous activity
- Adequate fluids and Electrolytes.

Summary

- Increase in ambient temperature, more
- difficult to dissipate body heat; sweating very important
- D/O Sycope to Stroke
- Fluid/ Na Replacement essential
- Prevention Best Therapy